Rocky Mountain Remediation Services L L C
protecting the environment

PROCEDURE

PLUGGING AND ABANDONMENT OF WELLS

RMRS/OPS PRO 122
Revision 0
Date Effective 01/31/99

APPROVAL _____ 1-21-99
Manager Water Operations Waste Operations Division — Date

USE CATEGORY 2

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1 0 PURPOSE

This standard operating procedure (SOP) contains procedures that will be used at the Rocky Flats Environmental Technology Site (RFETS) to plug and abandon monitoring wells and piezometers The proper plugging and abandonment of obsolete relict, or damaged wells is necessary to prevent the entry of contaminants to groundwater through the borehole and prevent the intermingling of groundwater from different sources through the borehole Well plugging and abandonment of wells which are no longer intended to be used is a requirement of the Water Well Construction Rules, 2 CCR 402 2 administered by the State of Colorado Department of Natural Resources Office of the State Engineer, Division of Water Resources

2 0 SCOPE

This document, which supersedes procedure OPS GT 11, applies to all RMRS personnel and subcontractors conducting work at the Rocky Flats Environmental Technology Site (RFETS)

Well plugging and abandonment will be performed at wells identified in an approved work plan or other work controlling document. The procedures contained within this SOP apply to all wells installed, owned, and/or permitted by DOE or its agents at RFETS This SOP also establishes the administrative requirements for incorporation of the State of Colorado Department of Natural Resources Office of the State Engineer Division of Water Resources Water Well Construction Rules, 2 CCR 402 2 into well abandonment activities

Plugging refers to the physical process of filling the well cavity with grout and/or other approved materials Abandonment involves plugging the well with grout and/or other approved materials, and the completion and documentation of all requirements of this SOP For the purpose of this SOP a well is defined as a cased ground penetration intended for monitoring the chemical, physical or potentiometric properties of groundwater, a cased ground penetration intended for production of groundwater or a cased ground penetration of unknown status Abandonment of boreholes, which are defined as ground penetrations drilled primarily for obtaining geologic and environmental information, is addressed in SOP RMRS/OPS PRO 117 Plugging and Abandonment of Boreholes

Prior to beginning any plugging and abandonment activity, the Project Manager shall notify the Water Operations Division This prior notification will allow for the final opportunity to perform any necessary sampling and/or hydrologic measurements

3 0 REQUIREMENTS

A RMRS or subcontractor representative with experience in well plugging and abandonments will conduct oversight and supervision of any field operations that will provide for the plugging and abandonment of wells by the methods covered under this SOP

The following sections identify the personnel qualifications, the equipment, and the procedures required to carry plugging and abandonment operations and/or related activities.

3 1 PERSONNEL QUALIFICATIONS

Personnel overseeing the abandonment of wells will be geologists, geotechnical engineers, or field technicians with applicable field experience or on-the-job training under the supervision of a senior geoscientist or engineer who has experience in well abandonment.

Personnel performing these procedures are required to have completed the initial 40-hour OSHA classroom training that meets Department of Labor Regulation 29 CFR 1910 120(e)(3)(i) and must maintain a current training status by completing the appropriate 8-hour OSHA refresher courses

Prior to conducting well abandonment operations and other related work, personnel are required to have a complete understanding of the procedures described within this and certain related SOPs. Personnel will receive specific training regarding these procedures as necessary

3 2 MATERIALS AND EQUIPMENT

The following materials and equipment may be used.

- Drill rig and associated equipment, including tools to perforate or rip casing
- Portable metal tanks for concrete flushing and mixing
- Reduced pH bentonite grout (American Colloid "Pure Gold" or approved equivalent)
- Concrete
- Inert, clean sand (Colorado Silica 16/40 filter pack or approved equivalent)
- Welding equipment
- Heavy-duty cutting tools (for steel protective casing, concrete, PVC well casing, etc)

- Down hole cutting tools
- Drums for containment of borehole effluent and sediment
- Mud balance
- Weighted tape measure
- Mirror
- Spotlight
- Sledgehammers for breaking up concrete well pads
- Stainless steel or aluminum well marking plates
- Steel disks for capping protective casings
- High pressure steamer/sprayer
- Phosphate-free lab-grade detergent (e g Liquinox)
- Health and safety monitoring equipment and personal protective equipment according to the Health and Safety Plan
- Well plugging and abandonment form (PRO 117A)
- Black waterproof pens

4 0 PROCEDURES

Equipment for plugging and abandoning boreholes will be used according to the pertinent requirements of SOP RMRS/OPS-PRO 114 Drilling and Sampling Using Hollow Stem Auger and Rotary Drilling and Rock Coring Techniques These requirements include use of contaminant-free lubricants only and visual monitoring of equipment for hydraulic and/or fuel or oil leaks All procedures will be conducted according to the Site Health and Safety Program Plan If necessary project specific requirements will be addressed in a project specific work plan

Several methods of well abandonment are addressed in the following sections Selection of the appropriate method of abandonment for a given well must be addressed in the project specific work plan based on information compiled for the well Factors to be considered in selecting the abandonment method include

- Casing material
- Casing condition
- Diameter of casing and borehole
- Type and quality of original seal
- Well location
- Well depth
- Well plumbness

- Hydrogeologic setting
- Location and type of zone(s) where contamination occurs
- Objective(s) of the abandonment

The method selected for well abandonment should be consistent with the following purposes of well abandonment:

- Prevent groundwater and soil contamination via the well
- Prevent intermixing of subsurface waters via the well
- Conserve hydraulic characteristics of hydrogeologic units
- Minimize physical hazards

If the well is to be abandoned in place without removing the casing, the original well pad may need to be replaced as discussed in Subsection 4 4 Concrete well pads will be monitored for chemical and radiological contamination in accordance with the procedures outlined in SOP FO 15 Photoionization Detectors and Flame Ionization Detectors, and SOP FO 16, Field Radiological Measurements. If contamination is detected, the pad must be replaced.

Contaminated areas of the well pad will be marked with paint sticks and then the pad will be broken up using appropriate tools, such as sledge hammers and pick axes, in such a way as to isolate the contaminated areas The underside of the pad (and any other surfaces, if necessary) will be brushed free of visible soil particles, with this soil being returned to its original location on the ground or in the borehole The underside of the pad will then be monitored for chemical and radiological contamination (see SOP FO 15 and SOP FO 16) and all contaminated areas will be marked as above The disposal of uncontaminated materials from well pads will be coordinated through the RMRS Solid Waste Operations, Waste Operations Division. All contaminated materials will be decontaminated in the field. After decontamination, the materials will be monitored and clean material will be disposed of in compliance with the above arrangements with Solid Waste Operations. Decontamination and wash water will be handled in accordance with SOP RMRS/OPS-PRO 112, Handling of Decontamination Water and Wash Water Material that is not monitored as clean will be stored in drums on pallets at the site pending further characterization Drums will be labeled as per SOP FO 10, Receiving, Labeling, and Handling Environmental Materials Containers

4 1 Abandonment Requiring Casing Removal

If casing removal is specified in the work plan, four methods may be considered.

- Casing pulling
- Casing destruction
- Overdrilling
- Overcoring

Regardless of the method selected, the concrete pad must be removed and disposed of according to the provisions set forth in Section 4 0

4 1 1 *Casing Pulling*

Casing may be pulled from the borehole using hydraulic jacks a forklift, or the lifting capabilities of the drill rig A vibration hammer may be used to augment the pulling High viscosity bentonite drilling mud may be placed in the casing to minimize collapse of the borehole walls as the casing is pulled. After the casing has been pulled, the borehole must be reamed to approximately the same diameter as the original hole to remove the annular materials and promote a good seal between the borehole wall and the new grout The cuttings and fluids from reaming must be drummed and characterized in accordance with the procedures outline in SOP RMRS/OPS PRO 115 Monitoring and Containerizing Drilling Fluids and Cuttings

4 1 2 *Casing Destruction*

Destruction of the casing can be accomplished by drilling out the casing in place Either hollow stem auger or rotary drilling methods may be appropriate A pilot bit or guide attached to the lead auger or tricone bit is advanced within the well casing as a guide in drilling out the casing High viscosity bentonite drilling mud may be placed in the casing and periodically added as the boring is advanced Thorough removal of the annular grout should be undertaken either by drilling the boring to approximately the same diameter as the original borehole or by reaming the borehole to destroy the casing after making the initial run The cuttings and fluids from drilling and reaming must be drummed and characterized in accordance with the procedures outline in SOP RMRS/OPS PRO 115 Monitoring and Containerizing Drilling Fluids and Cuttings

4 1 3 *Overdrilling*

For the purpose of this SOP overdrilling refers to the use of hollow stem augers to drill around the well casing The hollow-stem auger should have an inside diameter of at least two inches larger than the well casing, and the auger flights should be at least the same diameter as the original borehole The augers will be drilled to the full

depth of the original boring If possible, the casing will be pulled with the augers in place. If the casing should become stuck within the hollow stem, water may be forced down the casing and out the screen in an attempt to free the casing If this procedure fails, the casing must be pulled simultaneously with the augers Reaming may be necessary after the casing is pulled if there is a significant amount of annular materials and debris remaining in the hole The cuttings and fluids from drilling and reaming must be drummed and characterized in accordance with the procedures outline in SOP RMRS/OPS-PRO 115, Monitoring and Containerizing Drilling Fluids and Cuttings.

4 1 4 *Overcoring*

For the purposes of this SOP, overcoring refers to the use of drilling equipment to overcore the well casing with a core bit. The core bit should have an inside diameter at least two inches greater than the outside diameter of the well casing The casing will be overcored to its total depth and pulled prior to or simultaneously with the drill rods The boring will then be reamed to a diameter larger than the original hole to remove annular materials and debris The cuttings and fluids from drilling and reaming must be drummed and characterized in accordance with the procedures outline in SOP RMRS/OPS-PRO 115, Monitoring and Containerizing Drilling Fluids and Cuttings

4 2 Abandonment Without Casing Removal

If specified in the work plan, the well may be abandoned with the casing left in place In wells which do not penetrate a confined hydrostratigraphic unit (HSU), the casing will be filled up to the static water level with clean inert sand (e g fresh Colorado Silica 16/40 filter pack) The balance of the well will then be filled with grout as addressed in Subsection 4 3 If the well is dry, the casing may be filled with grout for its entire length

Wells penetrating more than one aquifer or contaminant zone may also be abandoned with the casing left in place These wells will be grouted for their entire length However, if documentation of the well does not clearly indicate that the casing opposite each confining layer or between two contaminant zones has been properly grouted, or if the well is otherwise known to be nonviable due to absent or inadequate grouting, the casing in such intervals must be perforated or ripped to allow the grout to fill any voids that may be present.

4 3 Grouting

Unless specified in the work plan due to site-specific conditions, grout shall consist of a reduced pH bentonite clay grout mixed according to the manufacturer's recommendations. The density of each batch of grout will be checked with a mud balance prior to pumping. It is recommended that the grout contain at least 30 percent solids by weight and have a minimum density of 9 9 pounds per gallon after mixing, or be in compliance with the manufacturer's

recommendations

Grout will be emplaced by pumping through a tremie pipe or drill stem with the bottom end of the pipe always being maintained below the top of the grout slurry within the well or borehole When grouting boreholes it is advantageous to begin the grouting process with hollow stem augers or temporary casing in the borehole removing sections as the grouting progresses in order to minimize borehole collapse If the hole or casing to be grouted is less than six feet deep grout may be poured directly into the open hole or casing from the surface rather than pumped, but care will be taken to pour the mixture gently so that the walls of the hole do not cave

Grout should be applied in as nearly as continuous a procedure from bottom to top as is practical to minimize segregation dilution and bridging problems If possible the tremie pipe will be kept near the bottom of the well or borehole Grouting will continue until grout is purged from the well or borehole undiluted To make the process easier and minimize the quantity of waste fluids that must be controlled containerized, and disposed it may be advantageous to purge the well or borehole immediately prior to grouting Dry wells may be filled with grout along their entire subsurface length to a point just above where the locking cap will be attached Dry boreholes may be filled with grout to approximately one to two feet below ground surface

4 4 Surface Protection

All well abandonments will be completed with a labeled concrete pad at the surface The purpose of the pad is twofold to ensure well abandonment integrity by providing a rigid, structurally sound cap that conforms to the edge of the borehole and/or ground surface and to mark the actual location of the abandoned well in the field for future reference

The configuration of the pad depends upon whether the well is being abandoned with the well casing left in place or with the well casing removed Furthermore there are different options available for abandonments where the casing is left in place

4 4 1 *Well Casing Left In Place*

For abandonments in which the well casing is left in place the original well pad (if present) may need to be removed This decision will be made by the RMRS project manager and will be based upon whether the pad is contaminated, whether there is a steel protective casing present, and the length of the steel protective casing

Regardless of the method of in-place abandonment, a watertight cap must be securely attached to the top of the

well casing left in the ground. It is easiest and most convenient if this is the first step in the well abandonment Begin by cutting the well casing using a down-hole cutter The well casing must be cut to leave a smooth even top The location of the cut should range from approximately one foot below ground surface (deeper if necessary and approved by the RMRS project manager but no deeper than five feet below ground surface) to one inch above the original ground surface It should not be broken, as this will leave an uneven upper surface that may be difficult to seal Next, fill the below-ground portion of the well casing with sand and/or grout as instructed in Subsections 4 2 and 4 3 Once this is completed, continue with the abandonment style that is most appropriate

For wells completed in the UHSU with stainless steel casing it will be necessary to cut the well casing after lifting the well pad, protective casing, and the well casing (as a unit) vertically, using a drill rig or fork lift equipped to lift the combined load. After exposing the well casing below the protective casing (typically 2 to 3 feet below the base of the well pad), the casing can be cut using a power saw with a blade capable of cutting stainless steel The well casing can either be pushed back into the hole for abandonment in place (see Subsections 4.2 and 4 3), or as an alternative the casing can be retrieved by the methods described in Subsections 4 1 1, 4 1 3, or 4 1 4 of this SOP

If the concrete well pad is found to be contaminated, it must be removed. See Section 4 0 for instructions on monitoring and disposal requirements

If the protective casing is approximately five to six feet long (the most common length at RFETS), the RMRS project manager typically will instruct that it be removed. The protective casing and pad may be separated and the pad broken into manageable pieces using sledgehammers or other appropriate tools The protective casing may be pulled out of the hole using a drill rig or other equipment designed for heavy lifting If this casing is pulled out of the hole vertically, the well casing contained within the protective casing and the well casing that is below ground surface should separate cleanly at the cut. The protective casing and pieces of pad will be monitored, marked, and handled as described above in Section 4 0 After removing these components, the cut surface that is now the top of the well casing will be wiped clean of soil and excess grout to maximize the integrity of the seal between the well casing and cap A permanent watertight cap (such as a locking "J-cap) will be securely affixed to the top of the casing. The new pad will then be constructed as described below in Subsection 4 4 3

If the original well pad is not contaminated and the protective casing can not be removed, a new pad need not be constructed. Instead, the protective casing, well casing, and any additional casing (such as surface casing) together with annular materials (typically Portland cement), will be cut flush with or slightly (up to one inch)

above the top surface of the original pad The top of the well casing will be cut off to leave a smooth level top which will be located sufficiently below the level of the protective casing to allow for the addition of the required well and protective casing caps The top of the well casing will be wiped clean of excess grout and a permanent watertight cap (such as a locking J cap ') will be affixed to the top of the casing The steel protective casing (and as necessary any other materials contained within this casing) will then be filed or otherwise ground flat A circular steel disk that is at least as thick as the protective casing and of the same diameter as the outside of the protective casing will then be welded to the top of the protective casing such that it forms a watertight cover over the annulus and well casing The well location code and date of abandonment will be stamped or engraved into or welded onto the surface of the disk These markings will be made so as to be readily visible despite any surficial corrosion that may be expected to take place yet will not compromise the structural integrity of the disk

If the protective casing is absent, the well casing will be cut at a level ranging from approximately one foot below ground surface (deeper if necessary and approved by the RMRS project manager but no deeper than five feet below ground surface) to one inch above ground surface The cut will be smooth and level A permanent watertight cap (such as a locking 'J" cap) will be attached to the top of the well casing The capped well casing will be embedded within the concrete pad as discussed in Subsection 4 4 3

4 4 2 *Well Casing Has Been Removed*

For abandonments in which the casing is removed, the newly re excavated borehole will be grouted as discussed in Subsection 4 3 After the borehole has been grouted and the grout has settled room must be made for the basal portion of the well pad In dry holes in which the grout was filled to one to two feet below ground surface no grout needs to be removed However where it was necessary to continue pumping grout downhole to purge groundwater and diluted grout from the hole enough grout will be removed to leave the uppermost one to two feet of the borehole empty This space will be filled with concrete, which will extend above ground surface to form the pad

4 4 3 *Concrete Pad*

The concrete pad will be round, gently domed, and in most cases one foot or less in diameter Its size and round shape will be controlled by a form constructed for the purpose Its outer edge will taper to meet the ground surface, and at its highest point it will be no more than three inches above ground surface The diameter of the pad will be approximately the same diameter as the borehole so that the pad is essentially a continuation of the hole (that is, a vertical cross-section of the pad will have a shape more like an inverted U than a

mushroom) The pad will be centered on the center of the well casing or borehole

At locations where the protective steel casing is absent or has been removed, the pad will be constructed immediately above and around the top of the capped well casing If an appropriately-sized hole is not already present around the top of the well casing, it will be necessary to excavate an annulus that is at least three inches wide (that is, the diameter of the hole must be at least six inches greater than the diameter of the well casing) by one foot deep so that the pad is securely embedded in the ground. After confirming that the annulus is sufficiently large, the concrete will be poured directly over and around the capped well casing to form the pad.

When the pad is semi-cured, a stainless steel or aluminum plate with the well ID and date of abandonment will be anchored to the surface of the pad. This information will also be marked into the surface of the pad. At abandoned wells in which the protective casing and original pad are left in place, this plate may be omitted due to the presence of the marked disk capping the steel protective casing. At all other locations, the plate will be placed in the center of the pad.

5 0 EQUIPMENT DECONTAMINATION

Pertinent decontamination procedures described in SOP RMRS/OPS-PRO 127, Field Decontamination Operations and SOP RMRS/OPS-PRO 070 Decontamination of Heavy Equipment at Decontamination Facilities, will be followed. Decontamination and wash water will be handled according to SOP RMRS/OPS-PRO 112, Handling of Field Decontamination Water and Field Wash Water

6.0 HANDLING AND STORAGE OF MATERIALS

The materials removed as part of the well abandonment process may include:

- Large solids (e.g., broken concrete pad, protective casing, lengths of well casing)
- Small solids (e g., drill cuttings, old grout, destroyed well casing)
- Liquids (e g., drilling fluids, excess grout and formation water)

The following describes the methods which will be followed to handle and store these materials.

6 1 CASING

Casing pulling, overdrilling, and overcoring will result in the recovery of intact lengths of casing from the

borehole Casing will be cut into manageable (e g 20 feet) lengths as it is removed from the borehole and further cut into sections no more than 5 feet long The casing will be screened for radionuclides and volatile organic compounds (VOCs) according to the procedures outlined in SOP FO 15 Photoionization Detectors and Flame Ionization Detectors and SOP FO 16 Field Radiological Measurements The casing will be cleaned with a brush to remove major dirt and/or debris

All casing determined to be above any VOC or radiological background level will be wrapped in plastic sheeting or plastic bags taped shut, and transported to the central decontamination station The casing will be decontaminated using a high pressure hot water washer

After cleaning and/or decontamination the casing will be screened and stacked into piles on a plastic tarp and covered with another tarp until routed for the appropriate method of disposal as designated in Section 4 0

6 2 SMALL SOLIDS AND SEMI-SOLIDS

These materials (e g small pieces of casing, concrete drill cuttings, etc) will be handled according to SOP RMRS/OPS-PRO 115 Monitoring and Containerizing Drilling Fluids and Cuttings

6 3 LIQUIDS

Liquids displaced from the borehole during grouting will be collected and handled according to SOP RMRS/OPS PRO 128 Handling of Purge and Development Water, and SOP RMRS/OPS-PRO 115 Monitoring and Containerizing Drilling Fluids and Cuttings This may require provisions at the ground surface to collect fluid such as a portable keyhole" pit or berm around the top of the borehole or casing discharging into a tank In deep boreholes where relatively large quantities of fluids may be anticipated, more elaborate measures such as grading the area and constructing lined pits may be required to control displaced environmental materials This will be addressed in a project specific work plan Liquid wastes generated during decontamination procedures will be handled according to SOP RMRS/OPS-PRO 112 Handling of Field Decontamination Water and Field Wash Water

7 0 QUALITY ASSURANCE/QUALITY CONTROL

Quality assurance (QA) and quality control (QC) activities will be accomplished according to applicable project plans as well as quality requirements presented in this SOP These activities will also comply with DOE Order 5700 6C and with the RMRS QAPD

8.0 DOCUMENTATION

Information required by this SOP will be documented on the Well/Borehole Abandonment Form (Form PRO 117A, found in SOP RMRS/OPS-PRO 117, Plugging and Abandonment of Boreholes) Environmental materials handling will be documented according to SOP RMRS/OPS-PRO 115, Monitoring and Containerizing Drilling Fluids and Cuttings. All pertinent information regarding well abandonments will be recorded in a field logbook, which will serve as the supporting documentation for all forms The Well/Borehole Abandonment Form will include, but not be limited to the following information

- Project, crew and location code
- Weather conditions
- Equipment descriptions (rig, tremie, pump, etc)
- Water level in well or borehole prior to abandonment (if any)
- Borehole depth/diameter
- Volume of sand placed
- Volume of grout placed
- Type/length/diameter of casing/screen removed
- Type/depth/diameter of casing/screen left in place
- Type/depth of cap attached to well casing
- Description and dimensions (diameter depth below ground surface) of pad constructed
- Chronological record of activities

Information on Form PRO 117A shall be entered into the field data capture program (current approved database) when released. See procedure RMRS/OPS-PRO 072 Field Data Management.

Copies of the completed Well/Borehole Abandonment Forms, signed by the task manager, will be delivered to the RMRS Project Manager The Well/Borehole Abandonment Form (PRO 117, Rev 0) and a State of Colorado Well Abandonment Report (State of Colorado Form No GWS-9 12/95) will be completed and provided to the RMRS Water Operations, Waste Operations Division. The Sate of Colorado Form No GWS-9 is required only if the abandoned well had been permitted. The Water Operations, Waste Operations Division will submit Form No GWS-9 to DOE for review, approval, and transmittal to the State of Colorado, Division of Water Resources

9 0 APPENDIX

Following well abandonment, the individual/company responsible for plugging the well will complete the form in Appendix 1 to comply with Section 8

10 0 REFERENCES

10 1 SOURCE REFERENCES

The following is a list of references reviewed prior to the writing of this procedure

Aller L , T W Bennett, G Hackett, R J Petty J H Lehr H Sedoris, D M Nielsen, and J E Denne Handbook of Suggested Practices for the Design and Installation of Ground Water Monitoring Wells EPA 600/4-89/034 National Water Well Association 1989 398 pp

Office of the State Engineer, Colorado Division of Water Resources, State Board of Examiners of Water Well Construction and Pump Installation Contractors Water Well Construction Rules, 2 CCR 402-2 1996 30 pp

10 2 INTERNAL REFERENCES

Related SOPs cross-referenced by this SOP are as follows

- SOP FO 6, Handling of Personal Protective Equipment
- SOP FO 10 Receiving, Marking and Labeling Environmental Materials Containers
- SOP FO 11 Field Communications
- SOP FO 15 Photoionization Detectors and Flame Ionization Detectors
- SOP FO 16, Field Radiological Measurements
- SOP RMRS/OPS-PRO 070, Decontamination of Heavy Equipment at Decontamination Facilities
- SOP RMRS/OPS-PRO 102, Borehole Clearing
- SOP RMRS/OPS-PRO 112 Handling of Field Decontamination Water and Field Wash Water
- SOP RMRS/OPS-PRO 114 Drilling and Sampling Using Hollow-Stem Auger and Rotary Drilling and Rock Coring Techniques
- SOP RMRS/OPS-PRO 115 Monitoring and Containerizing Drilling Fluids and Cuttings
- SOP RMRS/OPS-PRO 117, Plugging and Abandonment of Boreholes
- SOP RMRS/OPS-PRO 127, Field Decontamination Operations

APPENDIX

Sheet 1 of 1

WELL ABANDONMENT REPORT

STATE OF COLORADO FORM NO. GWS-9 12/95

FORM NO GWS-9 12/95

STATE OF COLORADO
OFFICE OF THE STATE ENGINEER
818 Centennial Bldg. 1313 Sherman St. Denver Colorado 80203
[303] 866-3581

For Office Use only

TYPE OR PRINT IN BLACK INK

WELL ABANDONMENT REPORT
(To Report Plugging and Sealing Water)

PERMIT NUMBER OF PLUGGED WELL _____

1. INDIVIDUAL/COMPANY RESPONSIBLE FOR PLUGGING
   NAME(S) _____
   Mailing Address _____
   City St. Zip _____
   Phone (____)_____

2. ACTUAL WELL LOCATION: COUNTY _____
   PROPERTY ADDRESS _____
   (Address) (City) (State) (Zip)
   ____1/4 ____1/4 Sec.____ Twp ____ ☐N ☐S Range____ ☐E. ☐W ____P.M.
   Distances from Section Lines ____Ft from ☐N ☐S Line ____Ft from ☐E. or ☐W Line

3. I (we) report that an existing well was plugged and sealed for the following reason(s):
   ☐ The well was plugged and sealed as required under the conditions of approval of Well Permit No. _____
   ☐ The well was not in use and was plugged and sealed
   ☐ Other (please explain) _____

4. The well was plugged and sealed according to the Water Well Construction Rules on _____ 19____

5. The well was plugged with the following materials placed at the indicated intervals.

AMOUNT AND TYPE OF MATERIAL	METHOD OF PLACEMENT	INTERVAL
_____	_____	from____feet to ____feet
_____	_____	from____feet to ____feet
_____	_____	from____feet to ____feet
_____	_____	from____feet to ____feet
INTERVALS OF CASING REMOVED/RIPPED IN FEET		from____feet to ____feet
		from____feet to ____feet

6. I (we) have read the statements made herein and know the contents thereof and that they are true to my (our) knowledge. (Pursuant to Section 24-4-104 (13)(a) C.R.S. the making of false statements herein constitutes perjury in the second degree and is punishable as a class 1 misdemeanor.)

Name/Title (Please type or print)	Signature	Date

INFORMATION– It is the responsibility of the well owner to have the well properly plugged and sealed. The Well Construction Contractor is responsible for notifying the well owner of the plugging and sealing requirement. This form may be reproduced by photocopy or word processing means.

6/06/97

16/16